

## **AMENDMENTS TO CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of the Claims:**

**1. (Currently Amended) A method of storing values in local variables used a virtual machine, said method comprising:**

**receiving a first sequence of bytecodes to be executed by said virtual machine;**

**selecting, at load time, a first-reduced instruction from a reduced set of virtual machine instructions, wherein said first-reduced instruction represents two or more different virtual machine instructions in said first sequences;**

**translating, at load time, said two or more different virtual machine instructions in said first sequence into said first-reduced instruction from said reduced set of virtual machine instructions;**

**generating, after said translating, a second sequence of bytecodes that includes said first-reduced instruction, thereby representing said first sequence of bytecodes with a second sequence which includes at least one instruction from said reduced set of virtual machine instruction that replaces said two or more different virtual machine instructions in said first sequence;**

**determining, at load time, whether said second sequence of bytecodes includes a Getfield instruction immediately followed by an Astore instruction;**

**generating, at load time, a macro instruction that represents said Getfield instruction and said Astore instruction that immediately follows said Getfield instruction;**

**loading in said virtual machine prior to execution time, said macro instruction instead of said Getfield instruction and said Astore instruction; and**

**executing said macro instruction to store a value into a local variable.**

~~In a Java computing environment, a Java macro instruction representing:~~

~~a sequence of Java Bytecode instructions consisting of a Java Getfield Bytecode instruction immediately followed by a Java Astore Bytecode instruction,~~

~~wherein said Java macro instruction can be executed by a Java virtual machine operating in said Java computing environment, and~~

~~wherein, when said Java macro instruction is executed, the operations that are performed by said conventional sequence of Java Bytecode instructions are performed.~~

2. (Cancelled)

3. **(Currently Amended)** A ~~Java macro instruction~~ method as recited in claim 1, wherein said Java macro instruction is generated during ~~a the Java B~~bytecode verification phase.

4. **(Currently Amended)** A method ~~Java macro instruction~~ as recited in claim 1, wherein said Java virtual machine internally represents ~~Java instructions~~ as a pair of streams.

5. **(Currently Amended)** A method ~~Java macro instruction~~ as recited in claim 4, wherein said pair of streams includes a code stream and a data stream, wherein said code stream is suitable for containing a code portion of said Java macro instruction, and wherein said data stream is suitable for containing a ~~data portion of said Java macro instruction.~~

6. **(Currently Amended)** A method ~~Java macro instruction~~ as recited in claim 5, wherein said Java macro instruction is generated only when said virtual machine determines that said ~~Java~~macro instruction should be generated ~~replace said conventional sequence.~~

7. **(Currently Amended)** A method ~~Java macro instruction~~ as recited in claim 6, wherein said determination of whether said macro instruction should be generated is made based on a predetermined criteria.

8. **(Currently Amended)** A method ~~Java macro instruction~~ as recited in claim 7, wherein said predetermined criteria is whether a Getfield instruction is immediately followed by an Astore instruction ~~said conventional sequence has been repeated more than a predetermined number of times.~~

9-20 (Cancelled)

21. (New) A computer system for storing values into local variables used by a virtual machine, wherein said computer system is capable of:

- receiving a first sequence of bytecodes to be executed by said virtual machine;
- selecting, at load time, a first-reduced instruction from a reduced set of virtual machine instructions, wherein said first-reduced instruction represents two or more different virtual machine instructions in said first sequences;
- translating, at load time, said two or more different virtual machine instructions in said first sequence into said first-reduced instruction from said reduced set of virtual machine instructions;
- generating, after said translating, a second sequence of bytecodes that includes said first-reduced instruction, thereby representing said first sequence of bytecodes with a second sequence which includes at least one instruction from said reduced set of virtual machine instruction that replaces said two or more different virtual machine instructions in said first sequence;
- determining, at load time, whether said second sequence of bytecodes includes a Getfield instruction immediately followed by an Astore instruction;
- generating, at load time, a macro instruction that represents said Getfield instruction and said Astore instruction that immediately follows said Getfield instruction;
- loading in said virtual machine prior to execution time, said macro instruction instead of said Getfield instruction and said Astore instruction; and
- executing said macro instruction to store a value into a local variable.

22. (New) A computer system as recited in claim 21, wherein said macro instruction is generated during a bytecode verification phase.

23. (New) A computer system as recited in claim 21, wherein said virtual machine internally represents instructions as a pair of streams.

24. (New) A computer system as recited in claim 23,  
wherein said pair of streams includes a code stream and a data stream,  
wherein said code stream is suitable for containing a code portion of said macro instruction, and

wherein said data stream is suitable for containing a data portion.

25. (New) A computer system as recited in claim 21, wherein said macro instruction is generated only when said virtual machine determines that said macro instruction should be generated.

26. (New) A computer system as recited in claim 25, wherein said determination of whether said macro instruction should be generated is made based on a predetermined criteria.

27. (New) A computer system as recited in claim 26, wherein said predetermined criteria is whether an Getfield instruction is immediately followed by an Astore instruction more than a predetermined number of times.

28. (New) A computer readable medium including computer program code for storing values into local variables used by a virtual machine, comprising:

- computer program code for receiving a first sequence of bytecodes to be executed by said virtual machine;

- computer program code for selecting, at load time, a first-reduced instruction from a reduced set of virtual machine instructions, wherein said first-reduced instruction represents two or more different virtual machine instructions in said first sequences;

- computer program code for translating, at load time, said two or more different virtual machine instructions in said first sequence into said first-reduced instruction from said reduced set of virtual machine instructions;

- computer program code for generating, after said translating, a second sequence of bytecodes that includes said first-reduced instruction, thereby representing said first sequence of bytecodes with a second sequence which includes at least one instruction from said reduced set of virtual machine instruction that replaces said two or more different virtual machine instructions in said first sequence;

- computer program code for determining, at load time, whether said second sequence of bytecodes includes a Getfield instruction immediately followed by an Astore instruction;

computer program code for generating, at load time, a macro instruction that represents said Getfield instruction and said Astore instruction that immediately follows said Getfield instruction;

computer program code for loading in said virtual machine prior to execution time, said macro instruction instead of said Getfield instruction and said Astore instruction; and

computer program code for executing said macro instruction to store a value into said local variable.

29. (New) A computer readable medium as recited in claim 28, wherein said macro instruction is generated during a bytecode verification phase.

30. (New) A computer readable medium as recited in claim 29, wherein said virtual machine internally represents instructions as a pair of streams.

31. (New) A computer readable medium as recited in claim 30,  
wherein said pair of streams includes a code stream and a data stream,  
wherein said code stream is suitable for containing a code portion of said macro instruction, and  
wherein said data stream is suitable for containing data.

32. (New) A computer readable medium as recited in claim 31, wherein said macro instruction is generated only when said virtual machine determines that said macro instruction should be generated.

33. (New) A computer readable medium as recited in claim 32, wherein said determination of whether said macro instruction should be generated is made based on a predetermined criteria.

34. (New) A computer readable medium as recited in claim 33, wherein said predetermined criteria is whether a Getfield instruction is immediately followed by an Astore instruction more than a predetermined number of times.